# Naval-Industry R&D Partnership Conference

# Science Advisor Breakout Session

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# Key Technology Interest Areas

- Combat ID
- C4ISR
- Force Protection
- Language Translation & Signal Processing
- IED (Improvised Explosive Device) Detection
- Nuclear, Biological, Chemical (NBC) Detection
- Improved Battery Life and Alternative Power Generation

**Common USMC & Joint Themes**

# Visual Language Translators

## Specific Technology Efforts

## Description of need:

- Low – cost language solution
- Builds on MFP initial concept
- Lightweight, no power needed
- Multi-service 80% solution
- Explore several prototypes

## Funding:

- $50K from LASER ACTD (8,000)
- Leveraged $50K from DLI (10,000)

## MFL Partners:

- II MEF, MFP, Army, ONR, DLI, NRL, SOCOM, LASER ACTD

## Outcomes:

- Has Saved Lives
- Unit costs <$8, $10Ks in savings
- II MEF has purchased 2,500 more
- CENTCOM sent out 45,000 more
- Design-your-own web version being developed by Army
- New versions being developed

# Electronic Kneeboard

## Specific Technology Efforts

## Description of need:

- In-flight moving map display
- Minimal impact to aircraft systems
- Night vision compatible
- Low cost solution ~ $1-3K

## Funding:

- ONR Tech Solutions
  - 11 tablet PCs (II MEF)
  - 11 tablet PCs (I MEF)

## MFL Partners:

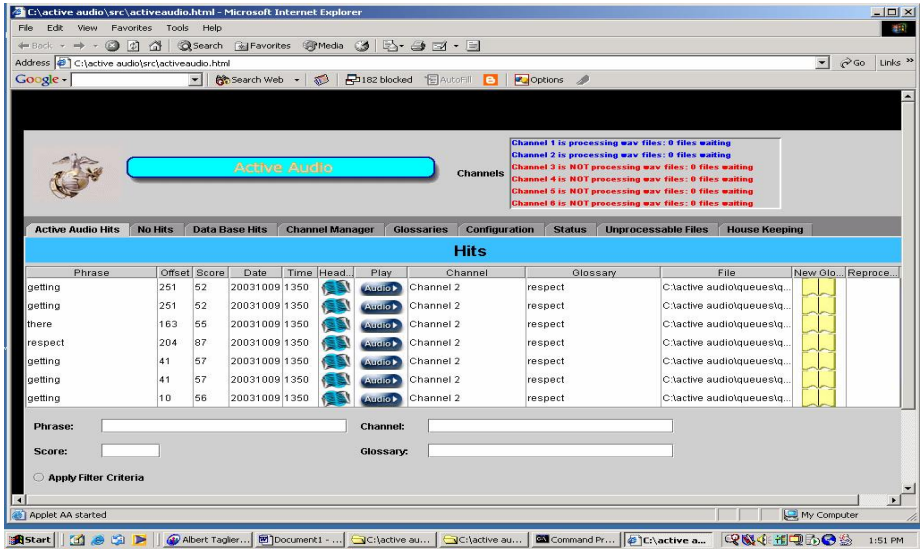
- I MEF, II MEF, ONR, NAVAIR, Army

## Outcomes:

- Has saved lives
- UH-1, AH-1W, H-53, H-46 Eval
- Strong interest from USMC pilots
- 4th MEB OEF Feedback
- GPRS demo – air BFT/SA potential
- Excellent developmental tool

# Audio Spotting Tool

## Specific Technology Efforts




## Description of need:

- Reduce SIGINT processing time
- Deployable with front line troops
- Lightweight, portable
- Low cost SIGINT triage tool
- Multiple languages, streams

## Funding:

- $100K from ONR FIP (FY03)
- $75K from LASER ACTD (FY03)
- Phase II ~$ 522K (FY04)

## MFL Partners:

- USMC, Army, LASER ACTD, ONR USAF, NSA, NRL, I-III MEF, MFP

## Outcomes (FY04):

- Near real-time SIGINT processing
- $1.2M Congressional Plus-up
- Could save 1000s of processing hrs
- Beta version in theater deployments
- Growing Joint Service interest
- 70% Deployable Solution Sep 04

# Combat Identification

## Specific Technology Efforts

- GPRS - MDACT OTH Demo, July 03
- FBCB2 USMC – Army Alignment Effort
- CJTF 180/76 Requirement for FBCB2 in USMC Helos
  - UH-1W and UH-1N in work at Pax River
  - Potential H-53 Integration
- GPRS – Integration in Hook Radio, Silent Hammer Exercise
- CJTFEX04-2 CCID Demo
  - BTID, Similar to MCTIS ORD
  - RBCI, SINCGARS radio based
- CCID ACTD MUA – Sept 05



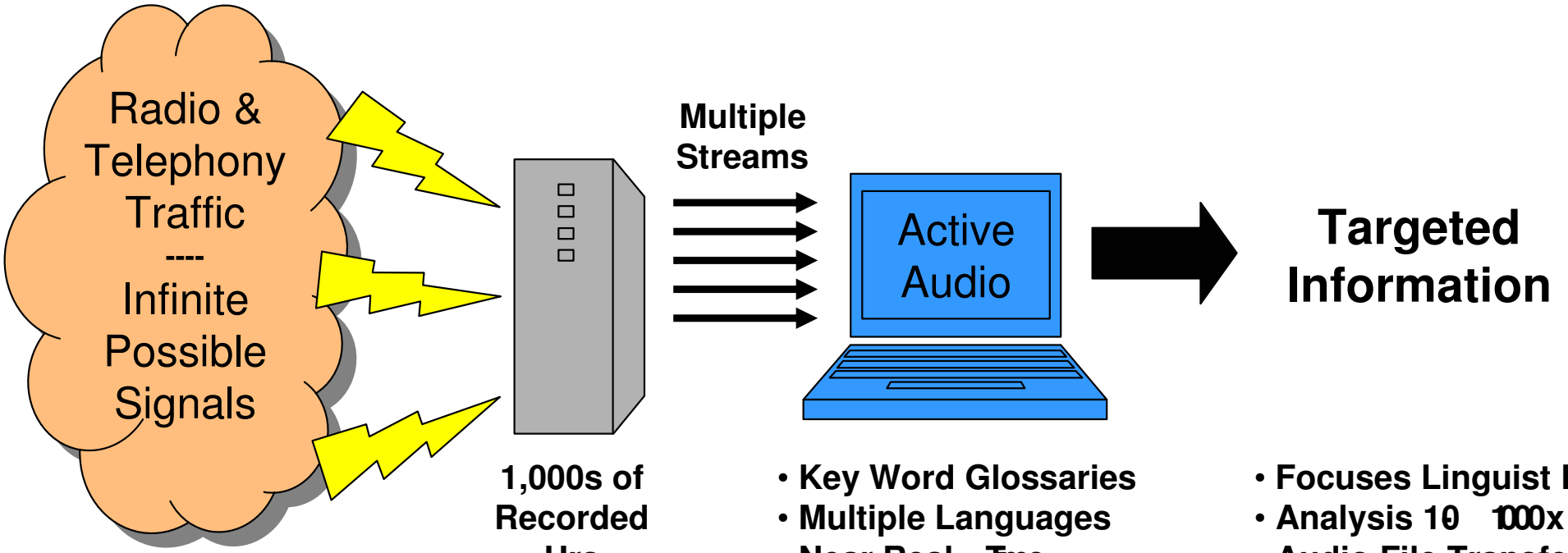
| | | | |
|---|---|---|---|
| **GPRS** | **Global Personnel Recovery System** | **RBCI** | **Radio Based Combat ID** |
| **OTH** | **Over the Horizon** | **CCID** | **Coalition Combat ID** |
| **BTID** | **Battlefield Target ID** | **MUA** | **Military Utility Assessment** |

# Backup Slides

# The Value of Active Audio

## Effective Signal Processing

**Environment ➡ Collection ➡ Triage ➡ Intelligence**



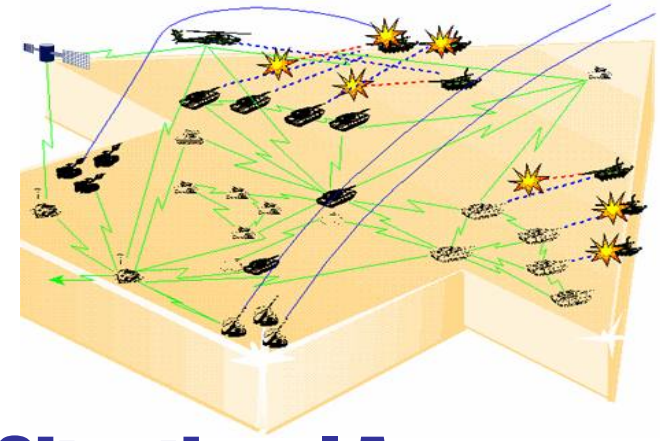

**1,000s of Recorded Hrs**

- **Key Word Glossaries**
- **Multiple Languages**
- **Near Real-Time**
- **Post Processing**
- **Portable – Laptop**
- **Recon to Rear Echelon**

- **Focuses Linguist Efforts**
- **Analysis 10 – 1000x Faster**
- **Audio File Transfer**
- **Joint SIGINT Sharing**

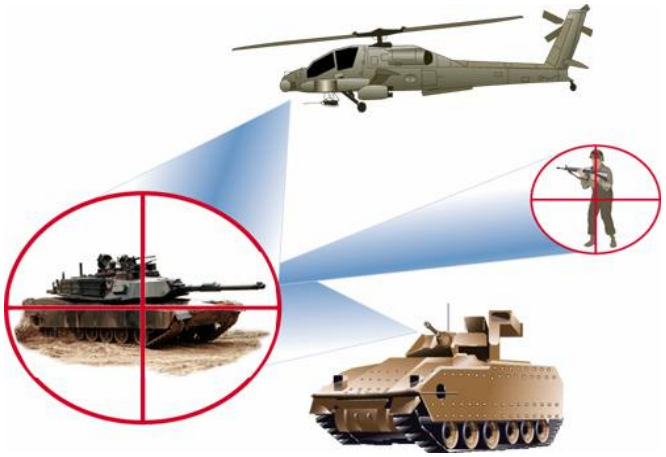
# Combat Identification

## S&T Urgent Need



**Situational Awareness**

**PLUS**



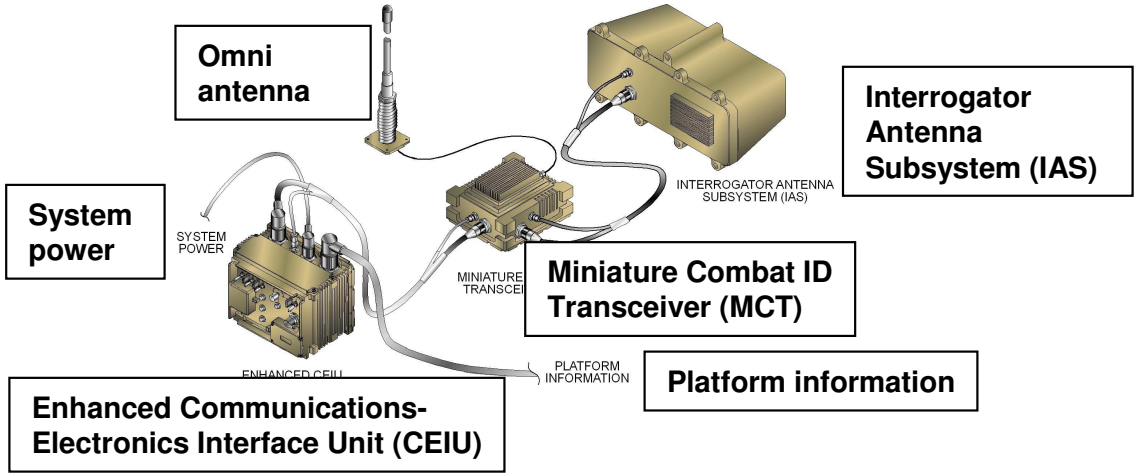
**Target Identification**

**Equals**

**Increased Combat Effectiveness and Reduced Fratricide**


SEE → **IDENTIFY** → ENGAGE

# Battlefield Target ID (BTID)

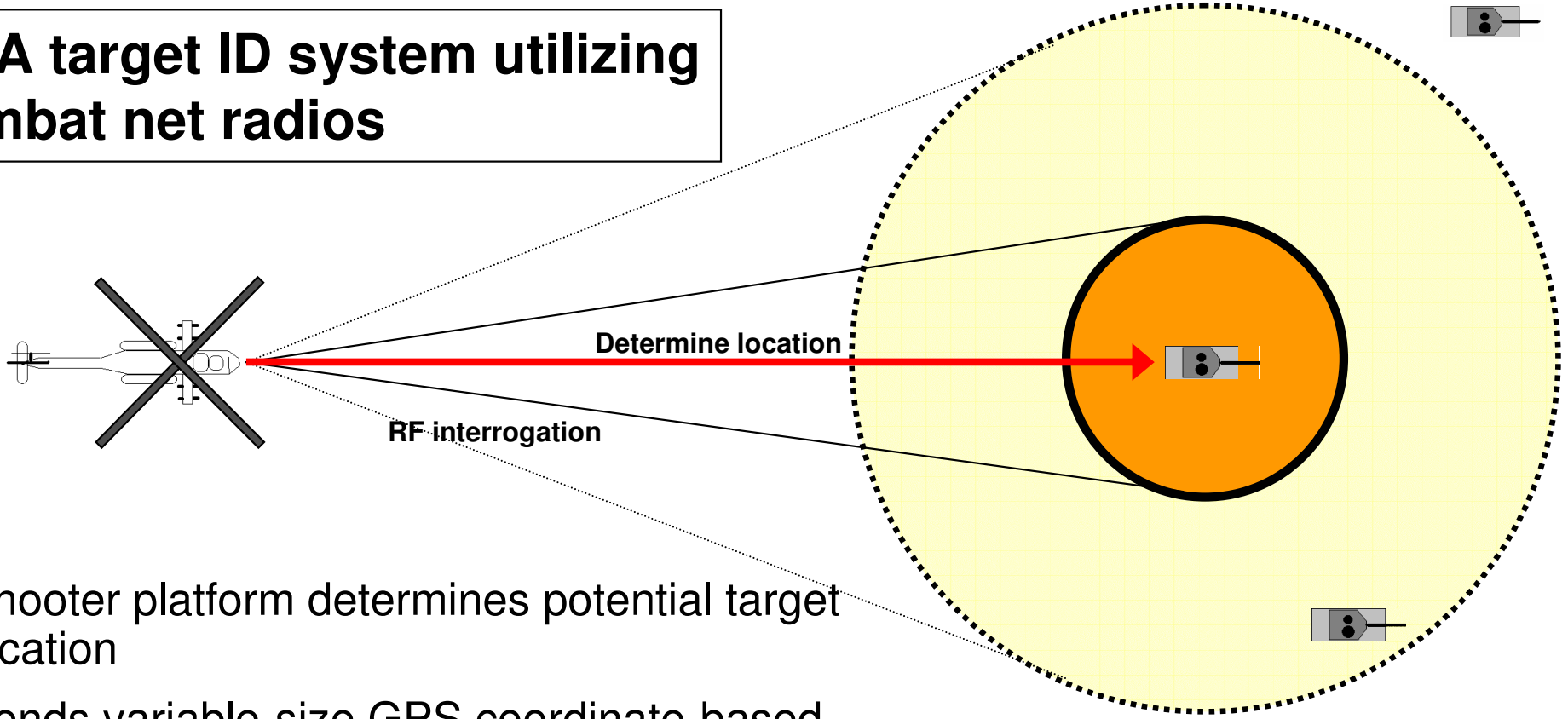



- Q&A, all-weather mmW fratricide solution
  - Real-time point-of-engagement target ID
  - PID > 98 percent; robust crypto
- Provides NATO-compliant mmW fratricide solution
- Provides NATO interoperability verification and mature technology for future mmW CID applications

| | | | |
|---|---|---|---|
| **CID** | **Combat Identification** | **PID** | **Positive Identification** |
| **NATO** | **North Atlantic Treaty Organization** | **Q&A** | **Question and Answer** |
| **mmW** | **millimeter wave** | | |

# Radio-Based Combat ID (RBCI)
## How it Works

**Q&A target ID system utilizing combat net radios**




- Shooter platform determines potential target location
- Sends variable-size GPS coordinate-based interrogation footprint over radio, centered around potential target
- If friendlies within footprint, they will respond that they are within the targeted area (don't shoot)

**RF**
**Variable target footprint**

| | |
|---|---|
| **GPS** | **Global Positioning System** |
| **Q&A** | **Question and Answer** |
| **RF** | **Radio Frequency** |